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SOME FISHES FROM VENEZUELA.

BY HENRY W. FOWLER.

Mr. Frank E. Bond having, during the past winter, organized an expedition to collect objects of natural history in the region of the Orinoco delta, secured the fishes here reported. The collection, though small, is important, as it contains several interesting forms apparently new. The Academy is indebted to Mr. Bond for the gift of the specimens to the museum.

CHARACIDÆ.**TETRAGONOPTERINÆ.*****Phenacogaster bondi*** sp. nov. Fig. 1.

Head $3\frac{3}{5}$; depth 2; D. iii, 9, 1; A. iii, 33, 1; P. i, 12; V. i, 6; scales in l. l. $31 + 2$; 8 scales above l. l.; 8 scales below l. l.; 14 predorsal scales; head width $2\frac{1}{10}$ its length; snout 4; eye $2\frac{3}{5}$; maxillary $2\frac{4}{5}$;

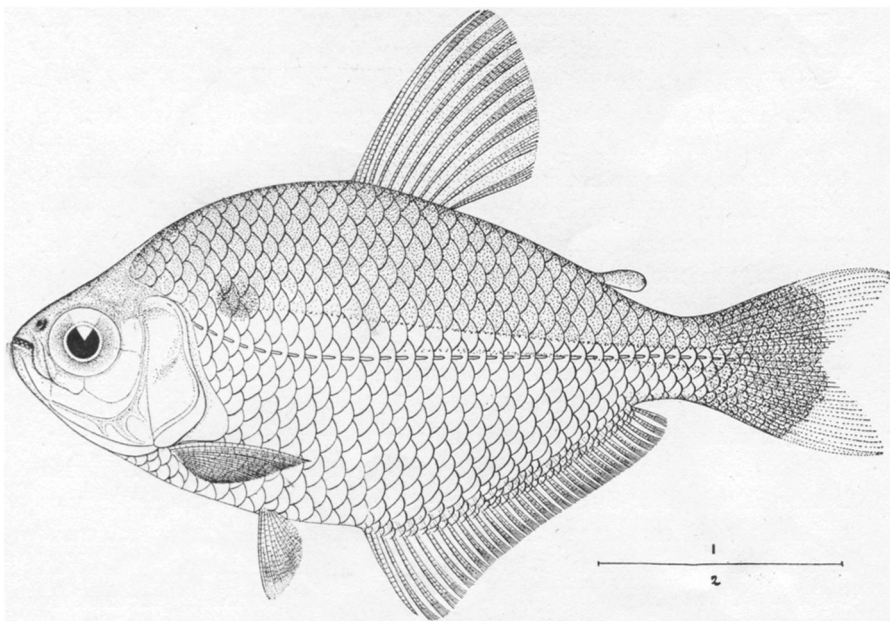


Fig. 1.—*Phenacogaster bondi* Fowler. Type.

mandible $2\frac{2}{5}$; interorbital $2\frac{1}{4}$; first branched anal ray $1\frac{3}{4}$; least depth of caudal peduncle $2\frac{1}{3}$; pectoral $1\frac{2}{5}$; ventral (tip damaged) $2\frac{1}{3}$.

Body deep, strongly compressed, contour slightly ovoid with greatest depth at dorsal origin, profiles generally similar, predorsal and post-ventral slightly trenchant and all other edges rounded convexly. Caudal peduncle well compressed, length about $\frac{4}{5}$ its least depth.

Head rather small, well compressed, upper profile at first slightly convex and then equally concave, lower profile a little convex, and flattened sides slightly constricted below. Snout convex over surface, obtuse, length about half its base. Eye rounded, but little elevated and near first $\frac{3}{8}$ in head. Maxillary exposed, except under edge which slips below narrow preorbital, nearly vertical, toothless, extends back a little beyond front eye margin, but not quite opposite pupil. Mouth broadly transverse, rather small, commissure as seen laterally slight and a little inclined. Lips rather thin. Teeth only in jaws, upper biserial and lower entirely uniserial, and most all or at least anterior ones with a strong median cusp and 2 smaller ones each side. Upper teeth of about uniform size, all at least tricuspid and smaller than mandibular teeth. Mandible about even with snout tip when closed, scarcely projects, surface convex and rami but little elevated. Tongue depressed, upper surface flattened, free in front, tip rounded. Nostrils close together, close before eye above, similar, and anterior with slight posterior cutaneous flap exposing posterior in slight crescent. Interorbital evenly convex. Postero-infraorbital width 2 in eye, and postorbital a little narrower. Suborbitals not entirely covering cheek or extending to preopercle ridge, leaving a rather wide strip of skin. Preopercle ridge inclined a little forward, and at lower corner 3 diverging flutings. Opercle narrow, width about $2\frac{3}{4}$ its depth. Occipital fontanel broad. Head bones all smooth.

Gill-opening forward about opposite or trifle before front pupil edge, though not to front eye edge. Rakers about $9 + 9$, slender, weak, pointed, compressed, about 2 in filaments. Latter about 2 in eye. No pseudobranchiæ. Isthmus compressed, constricted in front, surface convex. Branchiostegals 4, compressed, rather large.

Scales large, each well exposed, in longitudinal series parallel with l. l., each with 2 or 3 radiating striæ, size uniform except smaller ones apparently distributed entirely over caudal, though at present most of them removed. Anal base covered with small scales like those on caudal. Other fins naked. Apparently no scaly axillary pectoral or ventral flaps. L. l. complete, a trifle decurved at first from shoulder, then straight to median caudal base. Tubes in l. l. simple, each well exposed and not extending back to exposed scale edge.

Dorsal origin a little nearer snout tip than caudal base, first branched ray longest, though tip of third depressed branched ray reaches well behind tip of last, and fin $1\frac{3}{4}$ to caudal base, or a little longer than head. Adipose fin inserted a little nearer caudal base than last dorsal ray base, fin base slender and end a little expanded, reaches 2 to caudal base. Anal base long, origin of fin about opposite second branched dorsal ray base, first branched ray longest with others graduated down about first half in fin length, after which rays uniformly lower. Caudal emarginate (damaged), apparently about long as head? Pectoral inserted low, extends well beyond ventral origin. Latter midway between pectoral and anal origins, fin about $\frac{7}{8}$ to anal. Vent close before anal.

Color when fresh in rum ecru-brownish generally, paler to whitish with bright silvery on sides below. Head pale brownish above, sides and below burnished brilliant silvery-white. Iris deep amber, with rather reddish tinge. Lips brownish. A grayish humeral spot about size of pupil. No caudal spot. From humeral spot to median caudal base an underlaid leaden streak, very narrow and well defined behind, overlaid silvery. Upper edge of body dusted with dull or pale brownish. Dorsals, caudal and anal dull olivaceous-brown, and other fins paler.

Length $1\frac{1}{2}$ inches (caudal tips damaged).

Type No. 37,863, A. N. S. P. Corisal, Venezuela. February 27th, 1911. F. E. Bond and Stewardson Brown.

Nos. 37,864 to 37,866, paratypes, same data. Head $3\frac{1}{4}$ to $3\frac{1}{2}$; depth 2; D. iii, 9, 1; A. iii, 29, 1 to iii, 32, 1; scales in l. l. 30 to 32 + 2 or 3; scales above l. l. 8 or 9; scales below l. l. 9 or 10; predorsal scales 14 or 15; snout 4 to $4\frac{1}{4}$ in head; eye $2\frac{1}{10}$ to $2\frac{1}{2}$; maxillary $2\frac{2}{3}$ to $2\frac{3}{4}$; interorbital $2\frac{2}{3}$ to $2\frac{1}{2}$; length $1\frac{3}{8}$ to $1\frac{1}{2}$ inches (caudal tips damaged).

Though the scales are not entirely distributed over the caudal fin at present, they were evidently so when the examples were fresh, and for this reason I have restored them on the accompanying figure. *P. bondi* differs from all the known species in its deeper body, which suggests *Tetragonopterus*. *P. pectinatus* (Cope) has the anal beginning before the dorsal origin, which may be seen on comparing my figure, wrongly called *Astyanax longior*.¹ The species I have figured as *A. pectinatus*² is *A. longior* (Cope). *P. megalostictus* Eigenmann and

¹ *Proc. Acad. Nat. Sci. Phila.*, 1906, p. 342, fig. 30.

² *L. c.*, p. 341, fig. 29.

P. microstictus Eigenmann both differ in the slender body, coloration, etc., when compared with *P. bondi*. *P. bairdii* (Steindachner) has the anal radii 40 to 42.

(Named for Mr. Frank E. Bond.)

APODASTYANAX gen. nov.

Type *Apodastyanax stewardsoni* sp. nov.

Body elongated moderately, well compressed. Head moderate. Mouth small. Teeth only in jaws, upper biserial and lower uniserial. Maxillary small, reaches front eye edge, toothless. Rakers thin, slender. Scales moderately small, cycloid, and only on base of caudal, remainder of fin and other fins naked. L. 1. complete, median along side. Dorsal inserted about midway in body. Anal with long base, inserted about opposite dorsal origin. Adipose fin present. Caudal emarginate. Pectoral low, moderate. No ventral fins. Coloration brownish, silvered. A grayish shoulder spot and a dusky basal caudal spot. Size small.

This genus seems to be well separated from almost all the others in the absence of ventral fins, of which there is no trace whatever.

(*A*, without; *πούς*, foot; *ἄστυναξ*, *Astyanax*; with reference to the absence of the ventral fins.)

Apodastyanax stewardsoni sp. nov. Fig. 2.

Head $3\frac{3}{4}$; depth $2\frac{1}{4}$; D. iii, 9; A. iii, 39, 1; P. i, 12; scales in l. 1. about $42 + 3$? (squamation injured); 12 scales above l. 1.; 13 scales below l. 1.; 21 predorsal scales; head width $2\frac{1}{3}$ its length; mandible about $2\frac{1}{5}$; dorsal base $1\frac{1}{5}$; first branched anal ray about 2; least depth of caudal peduncle $2\frac{1}{4}$; pectoral $1\frac{1}{8}$; snout 5 in head measured from upper jaw tip; eye $2\frac{1}{2}$; maxillary $3\frac{1}{8}$; interorbital $2\frac{3}{4}$.

Body strongly compressed, deepest before middle or about first $\frac{2}{5}$ in total length at dorsal and anal origins, predorsal region with slightly constricted or trenchant edge due to median keel, other edges rounded convexly, and general contour ovoid. Caudal peduncle well compressed, length about $\frac{1}{3}$ its least depth.

Head moderate, compressed, lower profile slightly more inclined, flattened sides a little constricted below. Snout short, surface convex, obtuse as viewed from above, length about half its basal width. Eye large, circular, a little elevated, about first $\frac{3}{7}$ in head. Mouth small, transverse, with strong jaws. Maxillary small, vertical, along front edge of eye below, and not extending below lower edge of latter, its greatest expansion about 4 in pupil. Lips thin. Teeth only in front of each jaw, none on maxillary. Upper jaw teeth 9 in

outer series, tricuspid, smaller than in inner series, and with median cusp enlarged. Inner upper teeth quadricuspid, each tooth having 2 small inner cusps and an enlarged cusp next to small external cusp. Mandibular teeth similar to last, large, uniserial, and 10 in number. No other teeth in mouth. Tongue depressed or flattened, rounded

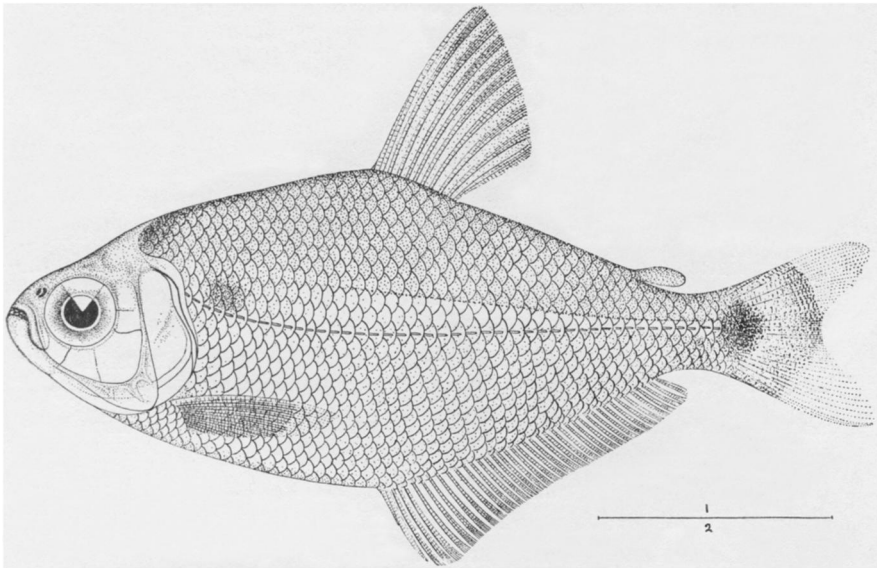


Fig. 2.—*Apodastyanax stewardsoni* Fowler. Type.

or free in front. Mandible small, strong, well protruded before snout tip, rather short. Nostrils together, close before eye above. Inter-orbital slightly convex. Postero-infraorbital broad, width about $\frac{3}{4}$ of eye. Other suborbitals all narrower. Preopercle ridge slightly inclined forward, its hind edge vertical. Opercle width $1\frac{1}{2}$ in eye.

Gill-opening forward about opposite front eye edge. Rakers: 9 + 14, small, thin, slender, $2\frac{1}{2}$ in eye. Filaments 2 in eye. Pseudo-branchiæ not evident. Isthmus narrowly constricted in front. Branchiostegals about 6, well compressed and rather broad.

Scales cycloid, all well exposed in longitudinal series parallel with l. l., not extending on fins except few on caudal base. No axillary pectoral scaly flap. L. l. complete, a little decurved at first, then straight and midway along side of body to caudal base medianly. Tubes in l. l. simple, each extending well over exposure of scale, though not quite reaching its hind exposed edge.

Dorsal origin inserted about midway between snout tip and caudal base, first branched ray largest (now a little damaged terminally), and apparently a little longer than head, depressed back slightly more than half way to caudal base. Adipose fin inserted trifle after last third in space between last dorsal ray base and caudal base, fin slender, about $1\frac{2}{3}$ to caudal base. Caudal (damaged) evidently emarginate. Anal inserted nearly opposite dorsal origin, anterior or first branched ray longest, base of fin long and all other rays low. Pectoral inserted low, rather long, upper rays longest, pointed, and falling little short of anal origin. Vent close before anal.

Color when fresh in rum pale brownish, nearly ecru, sides and below silvered whitish. Scales along edge of back and above dusted rather inconspicuously with dull dusky. A leaden streak from shoulder to caudal base, where it resolves in an ill-defined dusky spot a little larger than pupil, but not so large as eye. Another spot at shoulder, where leaden streak begins, a little smaller than caudal spot, and paler or leaden in color. Dorsal and caudal pale olivaceous-ecru, and anal similar though still paler. Pectoral very pale or whitish. Iris deep brown, tinged reddish. Head pale brown above, sides and below burnished bright silvery-white. Lips pale brownish. Peritoneum showing through abdominal walls as whitish.

Length $1\frac{3}{4}$ inches (caudal tips damaged).

Type No. 37,867, A. N. S. P. Corisal, Venezuela. February 27th, 1911. F. E. Bond and Stewardson Brown.

Only the above, a small example, taken in a pail from a small stream, along with the types of *Phenacogaster bondi*. It is now in rather poor preservation.

(Named for Mr. Stewardson Brown.)

SERRASALMINÆ.

Pygocentrus stigmaterythræus sp. nov. Fig. 3.

Head $2\frac{3}{4}$; depth $1\frac{5}{8}$; D. ii, 15, 1; A. iii, 27, 1; P. i, 15; V. i, 6; scales in l. l. according to tubes $80 + 9$; scales above l. l. along its course $102 + 12$; 40 scales above l. l. to dorsal origin; 48 scales below l. l. to ventral origin; 38 scales below l. l. to anal origin; predorsal scales about 57; head width about $1\frac{1}{5}$ its length; head depth at occiput about $1\frac{1}{10}$; mandible $2\frac{1}{3}$; first branched dorsal ray (tip damaged now) about $1\frac{2}{3}$?; third simple anal ray $2\frac{1}{4}$; least depth of caudal peduncle $3\frac{1}{2}$; upper caudal lobe (tip damaged) about $1\frac{2}{3}$?; lower caudal lobe (tip slightly damaged) about $1\frac{1}{4}$; pectoral $1\frac{1}{2}$; ventral $2\frac{1}{2}$; snout $3\frac{3}{4}$ in head measured from upper jaw tip; eye $4\frac{1}{2}$; maxillary $2\frac{1}{2}$; inter-orbital $2\frac{1}{4}$.

Body deep, well compressed, robust, contour slightly ovoid with greatest depth at dorsal origin, predorsal edge slightly trenchant, also postdorsal, abdominal edge trenchant with $19 + 9$ serræ, of which postventral larger, and other body edges all convexly rounded. Caudal peduncle well compressed, its least depth about equal to its length.

Head heavy, robust, compressed moderately, upper profile more

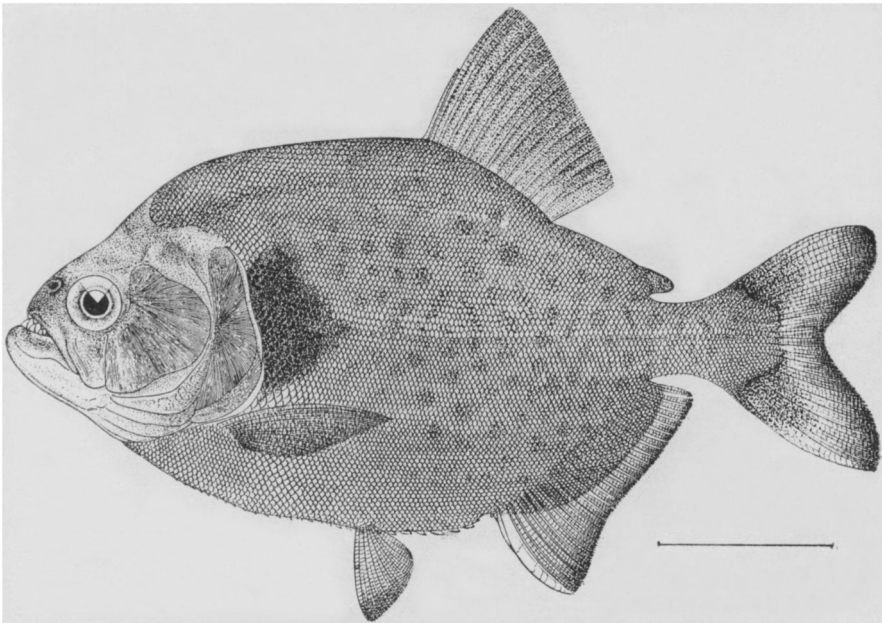


Fig. 3.—*Pygocentrus stigmaterythreus* Fowler. Type.

inclined, first convex and then slightly concave. Lower head profile a little convex and flattened sides scarcely constricted below. Snout surface convex, abruptly declivous in front and length about $\frac{2}{3}$ basal width. Eye circular, lower edge falling about level with middle in greatest head depth at occiput, and about first $\frac{2}{3}$ in head measured from snout to hind edge of opercle. Mouth broadly transverse, a little oblique and with strong, powerful jaws. Maxillary small, well inclined, rather small, its upper hind end entirely concealed by broad infraorbital, though it would reach about opposite middle of eye. Lips well developed, mandibular a little thicker. Teeth only in jaws, well compressed, uniserial, all with tips slightly recurved, triangular, and most or at least median ones with a small and often obsolete basal cusp each side. Mandibular teeth much larger than those in upper

jaw, all sharply pointed and with entire edges. Buccal fold inside each row of teeth large and fleshy. Tongue broad, depressed, fleshy, rounded and free in front. Mandible large, strong and protruding well beyond snout, surface broadly convex below, and rami but little elevated in mouth, though much deeper at articulation behind than at symphysis. Nostrils large, together, anterior large pore with broad cutaneous flap behind exposing posterior in crescent. Interorbital broadly and evenly convex. Infraorbital width about equals eye, with narrow anterior preorbital moiety. Postero-infraorbital width about equals $1\frac{1}{2}$ eye-diameters, though not extending below to preopercle ridge, leaving an elongated unevenly triangular naked region on cheek below, greatest width of which area about $2\frac{3}{4}$ in eye. Postorbital large, nearly equal to greatest width of postero-infraorbital. Opercle vertical, narrow, greatest width about $3\frac{1}{2}$ its depth or but trifle less than eye. All suborbitals and opercle with conspicuous or well-marked radiating striæ, also some coarser and uneven striæ in lower hind flange of preopercle. Lower and exposed surfaces of subopercle, interopercle and branchiostegals also show a few feeble striæ. Cutaneous margin of gill-opening narrow. Upper surface of head covered with smooth skin and a long, narrow median occipital fontanel. Shoulder-girdle little exposed, smooth.

Gill-opening forward about opposite hind eye edge. Rakers 8 + 12, conic, with rather slender tips, fleshy, pliable, uppermost and lowermost somewhat rudimentary, longest 2 in eye. Filaments $1\frac{1}{2}$ in eye. No pseudobranchiæ. Gill-membranes form broad fold over isthmus, latter broad and surface slightly convex. Branchiostegals 4, broad, all well exposed.

Scales small, cycloid, mostly disposed in longitudinal series parallel with l. l. and becoming a little enlarged just after gill-opening, along abdominal serræ and behind pectoral base. Caudal base broadly covered with scales but little smaller than those on caudal peduncle. Anal base also broadly scaly, only outer scales much smaller. A concealed depressed sagittate spine before dorsal origin with apex directed towards head. Small broad-based double spine before anal origin. No axillary scaly flaps to paired fins. L. l. complete, begins a little high at first, slopes down soon till opposite median axis and then runs straight to caudal base, and also extends over squamation of latter. Tubes rather small, simple, well exposed, but not extending entirely over exposures of scales. Scales not completely passing over predorsal ridge, but leave a narrow naked strip.

Dorsal origin falls about midway in vertical between eye center and

caudal base, first branched ray (tip slightly damaged) evidently longest, and not quite depressed posteriorly far as tip of last ray, fin $1\frac{3}{4}$ to caudal base. Adipose fin inserted about midway between last dorsal ray base and caudal base, fin about 2 to latter. Caudal broad, emarginated behind, lower lobe much larger and stronger, all rays rather osseous. Anal inserted opposite seventh dorsal ray base, rudimentary rays and also first branched, all rather enlarged, osseous and conspicuous, third simple longest with others graduated down about first half of fin, after which all of about uniform height. Pectoral inserted low, pointed, about $1\frac{1}{2}$ to anal, or tip at least a little beyond ventral origin in vertical. Ventral inserted a little before dorsal or about midway in vertical between pectoral and anal origins, reaches about $1\frac{1}{3}$ to anal. Vent close before anal, but without abdominal serræ extending along sides. Last abdominal serrature (counted one above) a series of 3 small transverse spines in front of vent.

Color when fresh in rum with back brilliant steel-blue, more or less dusky and brownish in some lights. Upper surface of head dusky-brown, becoming paler on sides and ruddy-vermilion on lower surface. Lips dusky like top of head. Iris deep brown, tinged with deep reddish. Teeth shining white. Abdomen brilliant vermilion, fading rosy and paler above and behind. Flanks grayish-brown with iridescent bluish of more or less paler tints than back, and all this region down to base of anal with inconspicuous deeper ill-defined spots, all of which much more clearly where scales have fallen. These obscure spots all small, mostly rounded, and apparently larger than pupil. A broad jet-black blotch of large size, about equal in extent to entire postero-suborbital area, at beginning of l. l. just after gill-opening. Dorsal deep dusky, also caudal largely similar, with rather broad submarginal diffuse brownish or paler area concurrent with much narrower blackish edge along hind emargination. Adipose fin dusky or blackish. Anal largely vermilion, scaly base reddish-brown, and lower edge narrowly dusky. Pectoral and ventral brilliant vermilion, latter with slight dusky tinge distally. Peritoneum whitish.

Length 5 inches.

Type No. 37,868, A. N. S. P. La Pedrita, on the Cano Uracoa, Venezuela. February 16th, 1911. F. E. Bond and Stewardson Brown.

Also No. 37,869, A. N. S. P., paratype, with same data. Head $2\frac{3}{4}$; depth $1\frac{9}{16}$; D. ii, 16, 1; A. iii, 27, 1; scales in l. l. according to tubes $77 + 7$; scales in lateral series counted along course of l. l. above $103 + 12$; 40 scales above l. l. to dorsal origin; 40 scales below l. l. to anal origin; about 40 scales below l. l. to ventral origin; about 59

predorsal scales; snout $3\frac{2}{3}$ in head measured from upper jaw tip; eye $4\frac{1}{2}$; maxillary $2\frac{1}{3}$; interorbital $2\frac{2}{5}$. Abdominal serræ $14 + 8$. This example otherwise agrees in most all respects. Length about 4 inches.

Although this species agrees very well with the diagnosis of *Serrasalmo* (*Pygocentrus*) *notatus* Lütken,³ the latter is too insufficiently described for positive identification. Lütken's examples were 9 inches long, and thus the smaller eye he gives as 3 in the interorbital and 6 in the head, may be due to age? Lütken also says the head is 3 in the body, without caudal. The only feature of coloration he mentions is the black shoulder spot. My examples show the eye half the interorbital width.

(Στίγμα, brand, with reference to the large black post-scapular blotch; ἐρυθράϊος, reddish, referring to the abdomen.)

Serrasalmus coccogenis sp. nov. Fig. 4.

Head $3\frac{1}{4}$; depth $1\frac{2}{3}$; D. ii, 14, 1; A. iii, 29, 1; P. i, 14; V. i, 6; scales in l. l. according to tubes $64 + 6$; scales counted above l. l. along its course $87 + 8$; 33 scales above l. l. to dorsal origin; 34 scales below l. l. to anal origin; 30 scales below l. l. to ventral origin; 49 predorsal scales; head width about $1\frac{7}{8}$ its length; head depth at occiput about 1; mandible $2\frac{2}{3}$; first branched dorsal ray $1\frac{3}{4}$; third simple anal ray $2\frac{1}{2}$; least depth caudal peduncle 3; upper caudal lobe (tip slightly damaged) about $1\frac{1}{2}$; lower caudal lobe $1\frac{1}{10}$; pectoral $1\frac{3}{5}$; ventral $2\frac{3}{5}$; snout 4 in head measured from upper jaw tip; eye $3\frac{1}{2}$; maxillary 3; interorbital $2\frac{2}{5}$.

Body deep, strongly compressed, contour slightly ovoid with greatest depth at dorsal origin, predorsal edge a little trenchant, postdorsal with only very slight median keel, abdominal edge trenchant with $23 + 10$ serræ, and other body edges rounded convexly. Caudal peduncle well compressed, length $\frac{4}{5}$ its least depth.

Head heavy, compressed, profiles similarly inclined, upper slightly convex and then equally concave, lower slightly convex. Flattened head sides scarcely constricted below. Snout surface convex, obtuse in front, and its length about half its basal width. Eye circular, but slightly elevated above middle in head depth and about first $\frac{4}{11}$ in head length between snout tip and hind edge of gill-opening. Mouth broadly transverse, a little inclined, and with strong jaws. Maxillary well inclined, rather small, its upper posterior end entirely concealed by broad infraorbital, though it reaches about opposite front pupil

³ Vidensk. Meddel. For. Kjöbenh., 1874, p. 238 (240).

edge. Lips rather thin, mandibular little better developed. Teeth only in jaws, well compressed, uniserial, all with tips slightly inclined inward, each tooth triangular with broad base and slight cusp each side, these becoming obsolete only on posterior teeth. Cutting-edges of teeth mostly with at least obsolete or feeble minute serræ, usually better developed towards basal cusps when present. Mandibular teeth considerably larger than upper ones. Buccal fold inside mouth along each row of teeth, large and fleshy. Tongue depressed, surface

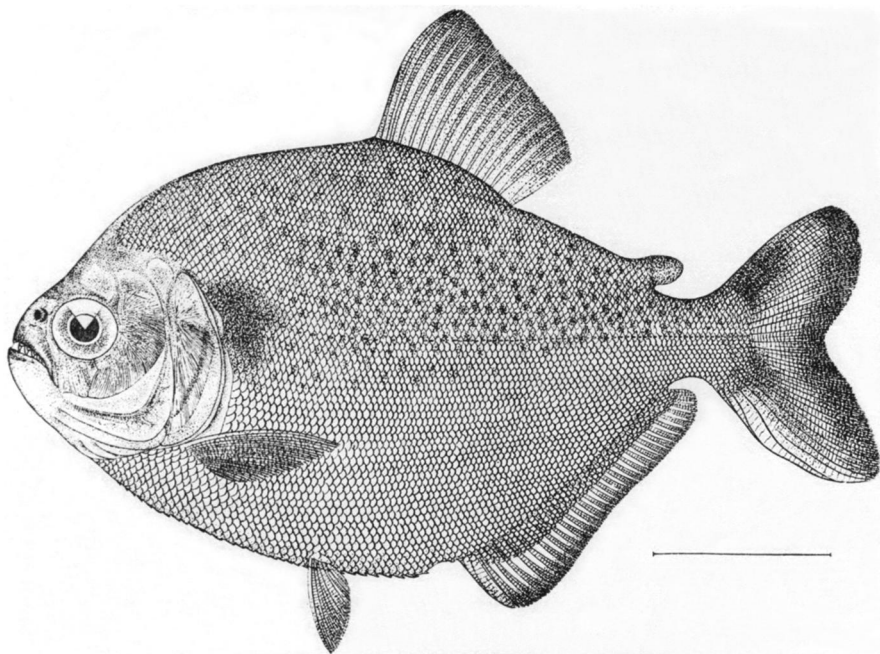


Fig. 4.—*Serrasalmus coccogenis* Fowler. Type.

level, rather pointed, and free in front with rounded tip. Mandible well protruding, moderate, strong, surface rather well convex below, and rami little elevated in mouth, though much deeper at posterior articulation than at symphysis. Nostrils large, together, both as simple large pores with broad cutaneous flap of anterior exposing posterior in crescent. Interorbital broadly and evenly convex. Infraorbital width $1\frac{3}{4}$ in eye, with narrow preorbital anterior projection. Postero-infraorbital width about $1\frac{1}{2}$ in eye, though not extending below to preopercle ridge, leaving an elongated and somewhat crescentic naked region on cheek below, greatest width of latter about

$2\frac{1}{3}$ in eye. Postorbital large, about as wide as postero-infraorbital. Opercle narrow, inclined slightly forward, its width about $3\frac{3}{4}$ its depth. Suborbitals, opercle, small marginal area of supraorbital, lower limb of preopercle, exposed portions of shoulder-girdle, subopercle, interopercle and lower or exposed portions of branchiostegals with radiating striæ. On suborbitals and opercle striæ quite numerous and fine, on lower limb of preopercle coarse and irregular, and quite feeble on subopercle, interopercle and branchiostegals. Upper head surface covered with smooth skin, and median occipital fontanel moderate.

Gill-opening forward about opposite front pupil edge. Rakers vi $2 + 7$, compressed, rather weak, flexible, pointed, about 3 in filaments. Latter $1\frac{1}{3}$ in eye. No pseudobranchiæ. Gill-membranes form rather broad free fold over isthmus, latter well constricted in front and broad behind, its surface slightly convex. Branchiostegals 4, well compressed, upper rather long, and all rather broad.

Scales small, cycloid, mostly disposed in series parallel with l. l., and becoming a little enlarged just after gill-opening and pectoral base. Caudal base broadly covered with scales like those on caudal peduncle. Anal base broadly scaly, and scales but little smaller than those on trunk above. A concealed sagittate-shaped spine before dorsal origin, apex directed towards occiput. Small broad-based double spine before anal origin. No axillary scaly flaps to paired fins. L. l. complete, begins a little high at first, then slopes from shoulder down to about opposite median axis, when straight to caudal, also extending out on squamous area of latter. Tubes simple, rather small, well exposed and not quite reaching across scale exposures. Narrow median naked strip along predorsal edge, over which scales do not pass and extending from occiput to dorsal.

Dorsal origin trifle nearer caudal base than mandible tip, first branched ray longest, falling well short of tip of last when depressed, fin $1\frac{1}{5}$ to caudal base. Adipose fin inserted about midway between eleventh dorsal ray base and caudal base, fin about 2 to latter. Caudal broad, emarginated behind, lower lobe much larger and stronger, all rays rather osseous. Anal inserted about opposite ninth dorsal ray base, rudimentary rays well compressed, osseous and enlarged, third longest, first branched ray strong and longest in fin, others graduated down about first third in fin, after which all of about uniform length. Pectoral inserted low, moderate, upper rays longest, reaches opposite ventral origin in vertical. Ventral inserted a little before dorsal or about midway between pectoral and anal origins in vertical, fin $1\frac{1}{7}$ to

anal origin. Vent close before anal, but abdominal serræ not along sides. Last abdominal serrature (counted as one above) a series of 3 small transverse spines before vent.

Color when fresh in rum with back bright or shining metallic-bluish in some lights, ground-color grayish-brown, and many obscure underlaid and rather crowded small pale dusky spots, these all much less than pupil, mostly only prominent above l. l. and scarcely evident below. Midway between dorsal origin and l. l. spots a little larger and more sparsely distributed than others. At shoulder above, just behind upper portion of exposed shoulder-girdle bones at beginning of l. l., a blackish blotch nearly equal to eye in extent, and of rather irregular triangular shape. Side of body below l. l. with general pale or whitish shade, but along its upper regions quite soiled with dull brownish, made up of minute dots. Head dull brownish above, sides tinged dull rosy, upper sides with olivaceous reflections, and under surface brilliant vermilion about branchiostegals and lower preopercle limb. From latter point all lower surface of head tinged or blushed rosy. Opercle ruddy, with smutty tints. Lips dusky. Iris deep and warm brownish. Chest, breast, axillary region of pectoral, and all region about abdominal serræ brilliant or blushed vermilion. Serræ on abdomen pale or whitish, like teeth. Dorsals and caudal dusky largely. Rayed dorsal somewhat tinged with olivaceous, and adipose fin rather brownish. Caudal margin behind blackish, also base, and intervening region brownish. Inside mouth and gill-opening pale. Anal ruddy vermilion basally, margin dusky-black. Pectoral and ventral brownish, ruddy basally.

Length $4\frac{7}{8}$ inches.

Type No. 37,870, A. N. S. P. La Pedrita, on the Cano Uracoa, Venezuela. February 16th, 1911. F. E. Bond and Stewardson Brown.

Head 3 to $3\frac{2}{7}$; depth $1\frac{3}{5}$ to $1\frac{3}{4}$; D. usually ii, 14, 1, often ii, 15, 1, rarely ii, 13, 1; A. usually iii, 30, 1, often iii, 29, 1, rarely iii, 28, 1; scales in l. l. according to tubes 58 to 69 + 5 to 7; scales counted in lateral series above l. l. 78 to 80 + 7 or 8; predorsal scales 47 to 53; scales above l. l. to dorsal origin 30 to 35; scales below l. l. to ventral origin 25 to 30; scales below l. l. to anal origin 30 to 35; abdominal serræ usually 21, sometimes 22, rarely 14 + 9; snout $3\frac{3}{4}$ to $4\frac{1}{2}$ in head measured from upper jaw tip; eye $2\frac{7}{8}$ to $3\frac{1}{2}$; maxillary $2\frac{7}{8}$ to 3; inter-orbital $2\frac{1}{3}$ to $2\frac{3}{4}$; length $2\frac{5}{8}$ to $4\frac{1}{4}$ inches. These examples all agree largely with the type, except that the two smallest show posteriorly on each palatine a small tooth. In color they also differ somewhat in

having the dark spots of the back quite large, rather sparse and conspicuous, even below the l. l. and to the caudal base. They also have less ruddy on the under surface of the body. Nos. 37,871 to 37,875, A. N. S. P., paratypes, with same data as type.

The true generic position of this species would appear somewhat doubtful, if the diagnosis of *Pygopristis* Müller and Troschel is allowed on its most important character, and that the absence of palatine teeth. None of my large examples have any palatine teeth, and in the 2 small ones there is only a single simple small conic cusp on each palatine bone, except in one instance where 2. Thus *P. serrulatus* Valenciennes⁴ may be found identical, though that writer does not mention any dark blotches on the side of the body, and yet he does say there are some traces of the dark shoulder-spot.

Serrasalmus caribe Valenciennes⁵ differs in the D. 20, A. 27, and no scapular spot is mentioned or represented on the figure. It may also be noted that *Serrasalmo albus* Humboldt and Valenciennes⁶ is evidently an older name for *S. caribe*, and should therefore replace it. *Serrasalmus rhombeus* (Linnæus) differs according to Müller and Troschel's figure⁷ in having more palatine teeth.

S. marginatus (Valenciennes) differs in the lower anal edge being black only, but not the hind caudal edge. Both *S. spilopleura* (Kner) and *S. gymnogenys* (Günther) are said to have 95 scales. *S. elongatus* (Kner) differs in its elongated contour, the depth $2\frac{3}{4}$. *S. gibbus* Castelnau apparently has no spots whatever on the trunk. *S. brandtii* (Lütken) has the scales 90, and the coloration is largely uniform or with minute blackish dots.

Among the species I have examined, *S. humeralis* Valenciennes, *S. maculatus* Kner, *S. æsopus* Cope, *S. iridopsis* Cope and *S. unimaculatus* Cope, all were found to have more palatine teeth in each series, besides various other characters.

S. paraënsis (Steindachner) I have not seen, and also have not been able to consult its original description.

(*Kóxxos*, berry-red; *γέλυτον*, cheek; with reference to the ruddy cheek.)

GASTEROPELECINÆ.

Chalcinus elongatus Günther.

Head 4 to $4\frac{2}{5}$; depth $3\frac{1}{2}$ to $3\frac{4}{7}$; D. ii, 9, 1; A. iii, 25, 1 to iii, 28, 1; scales in l. l. 38 to 40 + 4 or 5; 7 scales above l. l.; 3 scales below l. l.

⁴ *Hist. Nat. Poiss.*, XXII, 1849, p. 224.

⁵ *L. c.*, p. 208.

⁶ *Obs. z. Comp.*, II, 1835, p. 173, Pl. 47, fig. 1. Orinoco R.

⁷ *Hor. Ich.*, I, 1845, Pl. 2, fig. 4.

to anal origin; 1 scale below l. l. to ventral origin; 21 to 23 predorsal scales; snout $3\frac{3}{4}$ to 4 in head measured from upper jaw tip; eye $3\frac{1}{8}$ to $3\frac{3}{8}$; maxillary $2\frac{3}{4}$ to 3; interorbital 3 to $3\frac{1}{8}$; gill-rakers 12 to 14 + 24 to 28. Snout obtuse, surface convex, length about $\frac{3}{4}$ its basal width. Adipose eyelid moderate, pupil vertical, ellipsoid. Maxillary vertical, to front eye edge. Lips rather thin. Usually, though sometimes absent, a pair of inner symphyseal mandibular small conic teeth. Each maxillary with 2 small teeth. Mandible slightly protruding. Interorbital well convex. Suborbital length about equals postocular. Gill-opening extends forward about opposite eye front. On thorax median series of scales largest. Pointed free axillary pectoral and ventral scaly flaps well developed. Color when fresh in rum largely bright silvery-white, back and upper surface with brilliant blue-green shade and largely brownish to dusky ground-color. Head brownish above, silvery-white on sides. Iris deep reddish-dusky. Lips brownish. Fins mostly olivaceous-dusky, lower pectoral rays, ventral and anal paler. Length $6\frac{1}{2}$ inches. La Pedrita, on the Cano Uracoa. February 16th, 1911. Five examples.

This species is undoubtedly related to the specimen I have identified with *Chalcinus brachipomus* Valenciennes, from Guiana.⁸ It agrees in the enlarged median lateral series of thoracic scales, and moderate adipose eyelid. From Castelnau's figure of *Chalcinus auritus* Valenciennes, it appears that species is also related, but it would differ in the hind caudal edge being convex. Possibly the enlarged median series of thoracic scales may be a character of subgeneric value, and for this group of species, the subgenus *Chalcinus* Valenciennes, type *C. brachipomus* Valenciennes, may be restricted. For the others the subgenus *Triportheus* Cope, type *T. flavus* Cope, may be used. It is, however, not possible to locate the other species satisfactorily, as they have been little studied and mostly imperfectly described. *C. albus* (Cope) and *C. magdalenæ* Steindachner, however, seem allied with *Triportheus* (*C. angulatus* group).

ERYTHRININÆ.

Hoplias malabaricus (Bloch).

Three from Pedernales on January 27th.

SILURIDÆ.

AUCHENIPTERINÆ.

Pseudauchenipterus guppyi Regan.

Two specimens from Pedernales taken January 26th, and both

⁸*Proc. Acad. Nat. Sci. Phila.*, 1906, p. 449, fig. 43.

agree with Regan's description.⁹ Surely, his figure on Plate 23 is also identical, though the legend reads *Pseudauchenipterus paseæ*, while on Plate 24 it reads as the present species, and thus the latter is truly *P. paseæ*.

Pseudauchenipterus nigrolineatus sp. nov. Fig. 5.

Head $3\frac{3}{4}$; depth $3\frac{3}{4}$; D. i, 6; A. iii, 18; P. i, 6; V. i, 7; head width $1\frac{1}{10}$ its length; head depth at occiput $1\frac{1}{5}$; snout $3\frac{2}{5}$; eye $5\frac{3}{4}$; maxillary $3\frac{2}{5}$; mouth width $2\frac{2}{5}$; interorbital $1\frac{1}{8}$; antero-internasal $3\frac{2}{5}$; pectoral $1\frac{1}{10}$; ventral $1\frac{1}{8}$; third simple anal ray $1\frac{1}{5}$; least depth caudal peduncle $2\frac{2}{5}$.

Body compressed, anteriorly robust, deepest at dorsal origin, and edges all convex. Caudal peduncle well compressed, least depth about $1\frac{2}{5}$ its length.

Head robust, upper profile nearly straight from snout tip to dorsal origin and little more inclined than lower profile, slightly convex sides a little converging above and very broad below, with under surface convex. Snout broadly depressed, its length about $1\frac{3}{4}$ its greatest width. Eye ellipsoid, inclined a little posteriorly, about midway in depth of head near first third head length, as seen in profile. Adipose eyelid well developed, completely covering eye. Mouth small, broadly transverse, commissure short. Band of villiform teeth in each jaw, moderately broad, and these dental areas simple. No other teeth in mouth. Tongue broad, fleshy, thick, not free, depressed. Maxillary barbel slender, reaches about $\frac{2}{3}$ in depressed pectoral spine. Four equally spaced mental barbels, outer reaches about middle in depressed pectoral spine and inner about first tenth. Internasal spaces about equally spaced, and space between front and hind nostril about 2 in internasal. Interorbital broad, depressed, and with very slight concave transverse area anteriorly. Frontal region with bones greatly perforate or honeycombed, and median fontanel opening broadly in front. Occipital and lateral contiguous bones, also predorsal plate, all finely rugose-striate. Opercle broadly triangular, and like all skin on side of head and snout, smooth. Antero-supra-orbital process swollen.

Gill-opening extends forward last $\frac{2}{8}$ in head. Rakers 8 + 14, short, firm, mostly well bifurcated, about $2\frac{1}{2}$ in filaments. Latter about equal eye. No pseudobranchiæ. Branchiostegals 4, slender, rather long.

Body covered with smooth skin. Head rugose on portions men-

⁹ *Proc. Zool. Soc. London*, Jan.-April, 1906, p. 387.

tioned, also large part of dorsal spine basally, hind projection of shoulder-girdle and pectoral spine slightly basally. Shoulder-girdle anteriorly, and above articulation of pectoral spine, swollen, its surface smooth. L. l. median, rather tortuous in its course, and with numerous small bifurcations, complete.

Dorsal origin trifle behind last third in space between snout tip and caudal base, spine long, nearly straight, much longer than head or equals space between snout tip and hind edge of posterior projection

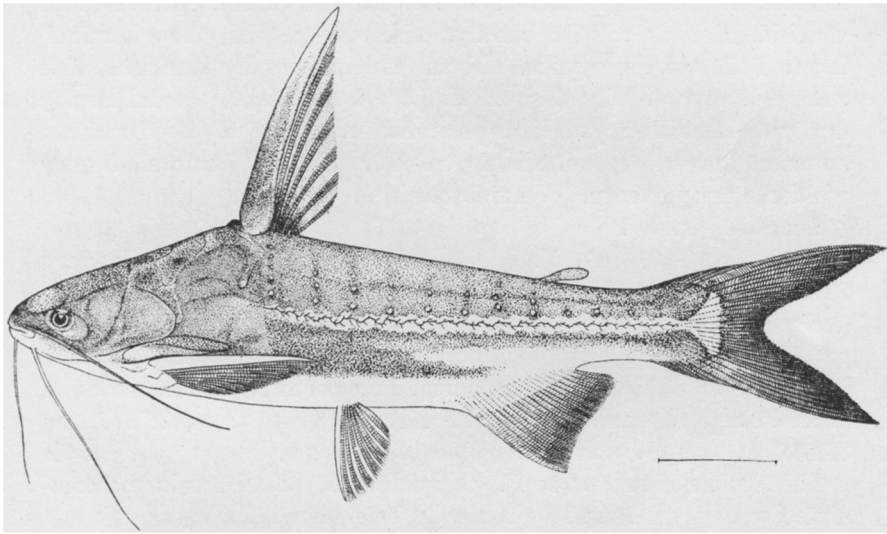


Fig. 5.—*Pseudauchenipterus nigrolineatus* Fowler. Type.

of shoulder-girdle, greatly swollen at each side basally, and its hind surface with numerous antrorse serræ. Dorsal radii slender, first but little shorter than spine and others rapidly graduated down. Adipose fin inserted about last third in space between dorsal origin and caudal base, fin 3 to latter. Anal inserted about midway between base of first dorsal ray and caudal base, third simple ray longest, rays evenly graduated down with edge of fin entire. Caudal well forked, a little longer than head, lobes slender, pointed, equal. Pectoral depressed about $\frac{7}{8}$ to ventral, with spine longest, then first ray but little shorter and others rapidly graduated down. Pectoral spine with inner margin evenly and finely serrated antrorsely. Ventral inserted about midway between hind end of posterior projection of shoulder-girdle and anal origin, fin about $\frac{4}{5}$ to latter. Vent close before anal.

Color when fresh in rum largely deep slaty-dusky or blackish, below whitish. A pale or whitish streak along l. l. to middle of caudal base bifurcating on caudal base to form a semi-ocellus at base of each caudal lobe. Posteriorly on caudal base this whitish bifurcation still margined dusky or blackish. Head and casque above mostly tinted olivaceous-dusky. Along each side of back, from below base of rayed dorsal about a dozen transverse series of very small white round spots, and in each series many as 4 or 5 sometimes, but only lower 2 of each at all distinct or conspicuous. Iris brownish. Lips whitish. Barbels whitish basally, otherwise grayish, though maxillary a little more brownish. Dorsal whitish, basally blackish, spine pale, and rays distally dusky. Adipose fin whitish. Caudal largely dusky to blackish, rays a little paler than membranes. Anal whitish, anterior longer rays medianly slightly dusky. Pectoral largely whitish, grayish above. Ventral whitish.

Length $7\frac{1}{2}$ inches.

Type No. 37,876, A. N. S. P. Pedernales, Venezuela. January 26th, 1911. F. E. Bond and Stewardson Brown.

Head $3\frac{2}{3}$ to 4; depth 4 to 5; D. i, 5; A. iii, 16 to iii, 18; snout $3\frac{2}{5}$ to $3\frac{1}{2}$ in head; eye $3\frac{2}{3}$ to $4\frac{1}{4}$; mouth width $2\frac{1}{3}$; interorbital $1\frac{3}{4}$ to 2; length $7\frac{7}{8}$ to $8\frac{3}{4}$ inches. The dorsal and pectoral spines are quite variable and all much shorter than in the type. Nos. 37,877 and 37,878, A. N. S. P., paratypes, same date as type.

This species is related to *P. guppyi* Regan, but differs in the complete dark lateral band longitudinally below the l. l.

(*Niger*, black; *linea*, line; with reference to the complete black infero-lateral band.)

LORICARIIDÆ.

Plecostomus verres (Valenciennes).

Two from Pedernales on January 27th.

CALLICHTHYIDÆ.

Hoplosternum littorale (Hancock).

One adult from La Pedrita, on the Cano Uracoa, on February 16th.

Hoplosternum thoracatum (Valenciennes).

One small example with the last.

POECILIIDÆ.

Anableps microlepis Müller and Troschel.

Three from Pedernales on January 25th.

CICHLIDÆ.***Astronotus ocellatus*** (Agassiz).

One from La Pedrita, on the Cano Uracoa, on February 12th. Color when fresh nearly uniform blackish, with bright orange circle a little less than orbit in size, a little above middle of caudal base.

TETRODONTIDÆ.***Colomesus psittacus*** (Schneider).

Three from Tucapeta, on the Rio Manimo, on February 22d.

One adult from Pedernales on January 27th.

BATRACHOIDIDÆ.***Batrachoides surinamensis*** (Schneider).

One from Pedernales on January 27th.

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